

290-9

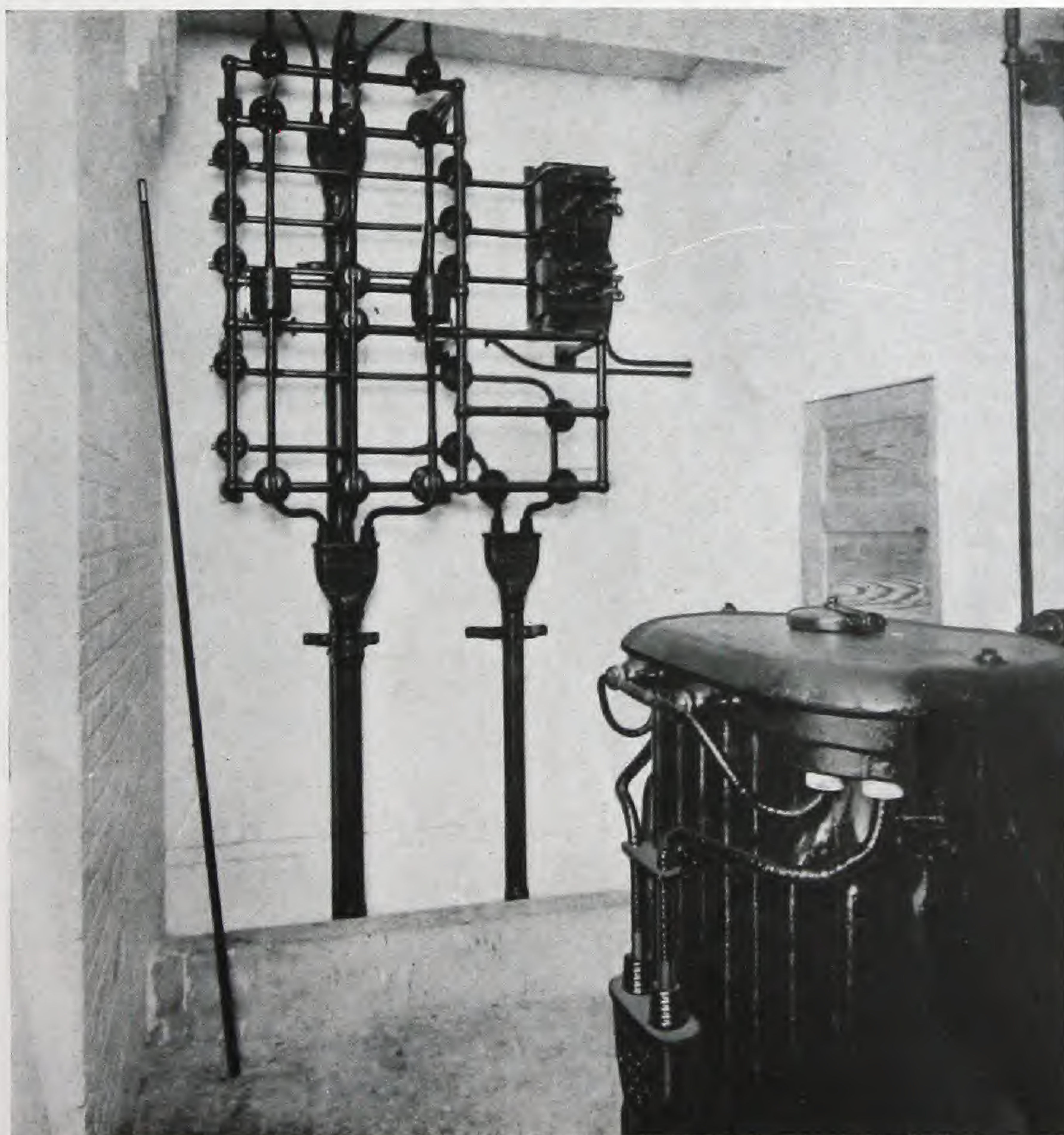
SEP 2 5 1919

# ELECTRICAL ENGINEERS EQUIPMENT CO.

BULLETIN NO. 102-A

## CABLE END BELLS

ALL VOLTAGES AND ALL SHAPES, INSIDE, OUTSIDE  
AND UNDERGROUND SERVICE



710 WEST MADISON STREET

CHICAGO, ILL., U.S.A.





# Electrical Engineers Equipment Company

## INTRODUCTION

**I**N presenting this bulletin we have endeavored to furnish as completely as possible cuts, catalogue numbers, and other information that is necessary for the proper selection of our material, which has been designed to meet the majority of requirements where such material is required.

We have purposely avoided going too minutely into lengthy and confusing details regarding minor or unimportant dimensions, in that we solicit your correspondence on same.

It should be thoroughly understood by our customers that we are prepared at all times to furnish every possible variation in design and construction, which is possible with our new facilities for turning out the greatest variety of this special material of any concern in our line in the world.

Particular attention is called to the fact that the data and prices herein given, are published for the convenience of our customers and every effort is made to avoid error, but this Company does not guarantee their correctness, nor does it hold itself responsible for any errors or omissions in this publication.

Bulletin 102-A, herewith, is a re-issue of Bulletin 102 with a few minor changes and additions.

## TERMS

Cash, unless otherwise agreed upon. Prices are net, F. O. B. Chicago, and subject to change without notice, and it is understood that this Company will in no way be held responsible for such changes as are necessary to meet market changes in raw materials.

All contracts and orders taken subject to strikes, accidents or other causes beyond our control.

No claims allowed unless made within ten days after receipt of goods.

Goods must not be returned without first obtaining our written permission.

Material returned for credit must be prepaid. A 10% service charge is made on material returned for credit.

The carriers are responsible for goods lost or damaged in transit. Material should therefore be carefully examined before accepting from transportation company.

All shipments weighing 25 pounds or less will be forwarded by express unless otherwise instructed. Material shipped by parcels post forwarded at customer's risk only unless ordered insured.

Kindly give catalogue number when possible.



# ===== Electrical Engineers Equipment Company =====

## Instructions for Placing Orders

### CABLE END BELLS

First, note whether inside, outside or underground cable bell is desired.

Second, give voltage, number of conductors in cable, advise whether cable is round or flat, also construction of cable and how cable insulation is protected, whether by lead sheath, or lead sheath and wire armor, or lead sheath and band steel armor, or whether cable is wire or steel armored without lead sheath.

Give size of conductors in circular mil's, or in Brown & Sharpe wire gauge. Give outside diameter over lead, and also over wire or band steel if with this armoring.

Advise if possible whether you want the bell to screw on iron pipe, to wipe to lead sheath or whether you want the bell to clamp onto the lead cable, in the latter case we assume that no iron protective pipe will be used.

Advise us if the inside cable bells are wanted for mounting in man-holes or other damp or semi-exposed places.

Advise whether bells are to be galvanized or sherardized.

For either finish add 20% to price of bell.

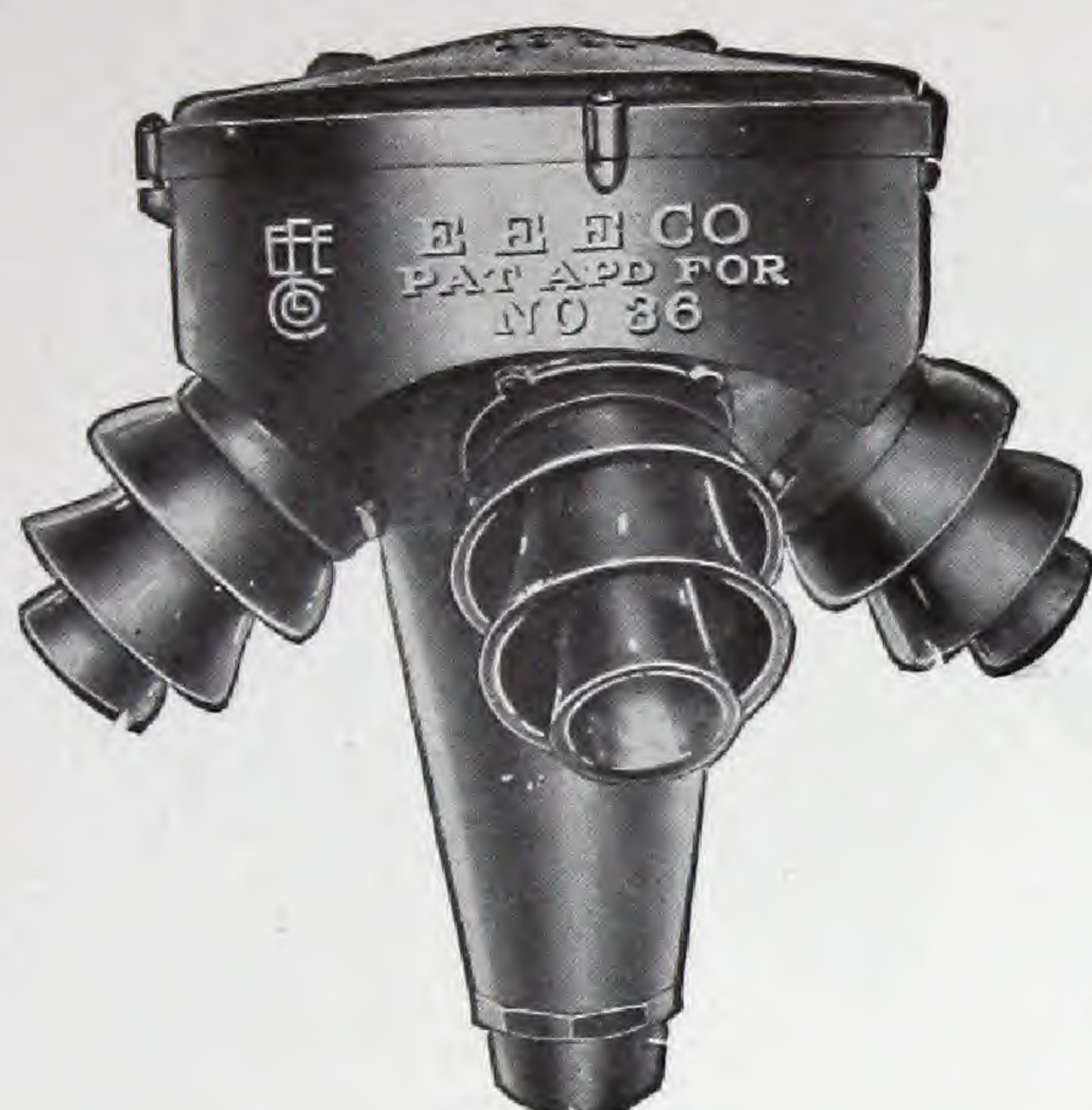
To materially aid in the erection of bells kindly read the instructions regarding the installing of same.

Sufficient compound is supplied with each bell to fill and seal same, and is included in the price. A reduction is made for the omission of filling compound.



# Electrical Engineers Equipment Company

## Cable End Bells



Type No. 36

Arranged to screw on iron pipe and provided with supports for pole mounting.

Outside Service Bell for voltages up to 33,000.

Catalogue No.	Maximum Outside Diameter of Lead Sheath	Voltage on Bell	Approx. Shipping Weight	Price
361	2 3/4"	15,000	360	\$ 80.00
362	3"	22,000	360	85.00
363	3 1/2"	33,000	360	100.00

For mounting on iron pipe up to 5 1/2".

Cable Bell No. 14 is designed as a mate for the above Bell, for inside service only. The cover is cast iron; porcelain bushings are of the wet process type.



Type No. 14

Inside Service Bell for voltages up to 33,000.

Catalogue No.	Maximum Outside Diameter of Lead Sheath	Voltage on Bell	Approx. Shipping Weight	Price
141	2"	15,000	100	\$38.00
142	2 1/2"	22,000	100	40.00
143	3"	33,000	100	45.00

For mounting on iron pipe up to 4 1/2".

These Bells can also be arranged to clamp cable sheath, armored cable or wipe on lead sheath at no extra cost.

**Write for Special Discounts.**



**Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage**

# Electrical Engineers Equipment Company

## Cable End Bells

Arranged to screw on iron pipe and provided with supports for pole mounting.



Types No. 30 and 31

Outside Service Bell for voltages up to 13,200.

Type No. 31

Catalogue No.	Conductors	Maximum Outside Diameter Over Lead	Voltage on Bell	Price
310	2	2 1/2"	6,600	\$30.00
311	2	2 1/2"	13,200	32.00
312	3	3"	6,600	36.00
313	3	3"	13,200	38.00

Shipping Weight approximately 100 lbs. per Bell.

For Mounting on Iron Pipe, up to 4 1/2".

Outside Service Bell for voltages up to 13,200.

Type No. 30

Catalogue No.	Conductors	Maximum Outside Diameter Over Lead	Voltage on Bell	Price
301	2	2"	6,600	\$28.00
302	2	2"	13,200	30.00
303	3	2 1/2"	6,600	34.00
304	3	2 1/2"	13,200	36.00

Shipping Weight approximately 100 pounds per Bell.

For Mounting on Iron Pipe, up to 4".

These Bells can also be arranged to clamp Cable Sheath, Armored Cable or Wipe on Lead Sheath at no extra cost.

**Write for Special Discounts.**

Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage

# Electrical Engineers Equipment Company

## Cable End Bells

### FOR OUTSIDE SERVICE



Type No. 38

Arranged to screw on iron pipe and provided with supports for pole mounting.

Outside Service Bell for voltages up to 13,200.

Catalogue No.	Conductors	Maximum Outside Diameter Over Sheath	Approx. Shipping Weight	Price
381	4	1 1/2"	75	\$22.00
382	4	2"	75	24.00

For mounting on Iron Pipe, up to 3".

All prices include filling compound.



Type No. 37

Outside Service Bell for voltages up to 13,200.

Catalogue No.	Conductors	Maximum Outside Diameter Over Sheath	Approx. Shipping Weight	Price
371	3	1 1/2"	75	\$21.00
372	3	2"	75	22.00

For mounting on Iron Pipe, up to 3".

Di-electric test 68,000 volts.



Type No. 39

Outside Service Bell for voltage up to 13,300.

Catalogue No.	Conductors	Maximum Outside Diameter Over Sheath	Approx. Shipping Weight	Price
391	2	1 1/2"	75	\$20.00
392	2	2"	75	21.00

For mounting on Iron Pipe, up to 3".

These Bells can also be arranged to clamp cable sheath, armored cable or wipe on lead sheath at no extra cost.

**Write for Special Discounts.**

**Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage**

# Electrical Engineers Equipment Company



Type No. 75

## Cable End Bells

FOR THIRD RAIL WORK

Simple, Efficient and Economical

For mounting on pipe or can be connected directly to lead covered cable.



Type No. 75



Safe in Operation,



Easy to install—few parts,

Catalogue No.	Max. Dia. over Lead Sheath	Pipe Size	Approx. Shipping Weight, Lbs.	Price
750	1 3/4"	Up to 5"	50 lbs.	\$16.00



Type No. 42

## A New Type of Outside Service Bell

For Voltage up to 16,500

For mounting on Iron Pipe up to 3 1/2 inches.



Type No. 42

Catalogue No.	Conductors	Max. Dia. over Lead Sheath	Voltage	Approx. Shipping Weight Lbs.	Price
420	2	1 1/4"	6,600	100	\$30.00
421	3	1 1/2"	6,600	100	33.00
423	2	1 3/4"	13,200	100	36.00
424	3	2"	13,200	100	38.00
425	3	2 1/2"	16,500	100	40.00

This Bell also furnished with coupling nut to clamp cable or for wiped joint at no extra cost.

Write for Special Discounts.

Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage

# Electrical Engineers Equipment Company

## Flat Type Cable End Bells for Inside Service Large Cables



Type No. 81

Cable Bells arranged to screw on iron pipe up to 4½ inches. For voltages up to 13,200.

Catalogue No.	Conductors	Maximum Diameter over Sheath	Voltage on Bell	Approx. Shipping Weights Lbs.	Price
811	2	2"	6,600	60	\$20.00
812	3	2½"	6,600	60	21.00
813	2	2½"	13,200	60	22.00
814	3	3"	13,200	60	23.00

Bells can also be furnished with mounting ears and coupling nuts for wiped joints or direct clamp on lead sheath at no extra cost.

Prices for higher voltage Bells on application.

All prices include filling compound. Di-electric test 68,000 volts.

Cable Bells arranged to screw on iron pipe up to 4½ inches. Voltage up to 25,000.



Type No. 81

Catalogue Number	Conductors	Maximum Diameter over Sheath	Voltage on Bell	Approx. Shipping Weights Lbs.	Price
815	2	2¼"	13,300	60	\$21.00
816	3	2½"	13,300	60	22.00
817	4	2½"	13,000	60	24.00
818	2	2½"	25,000	60	30.00
819	3	3"	25,000	60	32.00

This type of Bell gives maximum service and occupies minimum space—an important consideration.

Write for Special Discounts.

Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage

# Electrical Engineers Equipment Company

## Flat Type Cable End Bells for Inside Service Medium and Small Cables



Type No. 82

Cable Bell arranged to screw on iron pipe up to 3½ inches. For voltages up to 13,200.

Catalogue No.	Conductors	Maximum Diameter Over Lead Sheath	Approx. Shipping Weights Lbs.	Price
820	2	2½"	50	\$20.00
821	3	2½"	50	21.00
822	2	2"	50	19.00
823	3	2¼"	50	20.00
824	4	2½"	50	21.00

Note Nos. 822, 3 and 4 for 6600 volts.



Type No. 82



Type No. 10

Can also be furnished with mounting ears and coupling nuts for wiped joints or direct clamp on lead sheath. Cable Bell, arranged to clamp the lead Sheath. For voltages up to 11,000 Volts.

Catalogue No.	Conductors	Maximum Diam. Over Lead Sheath	Voltage on Bell	Approx. Shipping Weights Lbs.	Price
101	2	1½"	6,600	50	\$16.00
102	3	1¾"	6,600	50	17.00
103	4	2"	6,600	50	18.00
104	2	1½"	11,000	50	19.00
105	3	1¾"	11,000	50	20.00
106	4	2"	11,000	50	21.00

Can also be mounted on pipe up to 3 inches.

Write for Special Discounts.

Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage

# Electrical Engineers Equipment Company

## Angle Type Cable End Bells for Inside Service

Can be supplied with coupling nut for pipe, clamp nut for cable, nut for wiped joint or can be mounted directly on conduit up to 3".



Type No. 11 Right Hand



Type No. 11 Left Hand

Prices for higher voltage Bells on application

Designed for either Right or Left Hand Service for all voltages up to 11,000 Volts.

Catalogue Numbers	Conductors	Maximum Diameter Over Lead	Voltage on Bell	Price
110	2	1½"	6,600	\$16.00
111	3	1¾"	6,600	17.00
112	4	2"	6,600	18.00
113	2	1½"	11,000	19.00
114	3	1¾"	11,000	20.00
115	4	2"	11,000	21.00

Shipping weight approximately 50 lbs. per bell.  
Always specify whether bell is for right or left hand service.



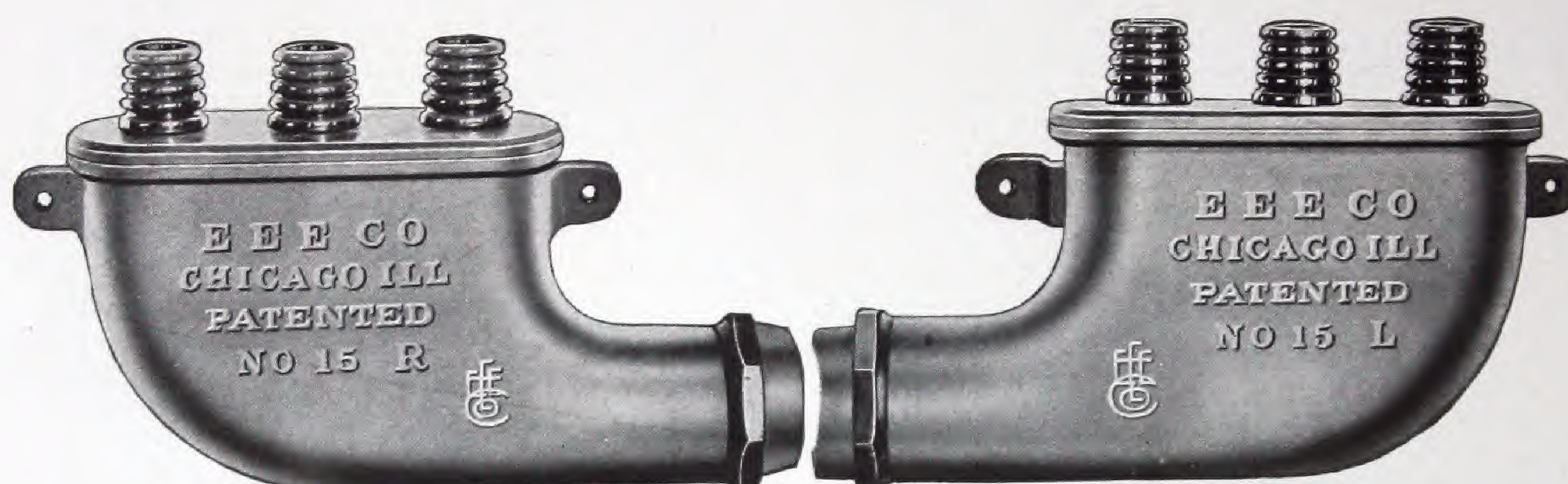
Write for Special Discounts.  
**FOR MOUNTING ON WALL**

Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage

# Electrical Engineers Equipment Company

## Angle Type Cable End Bells for Inside Service

Can be supplied with coupling nut for pipe, clamp nut for cable, nut for wiped joint or can be mounted directly on conduit up to 3 1/2".



Type No. 15 Right Hand

Type No. 15 Left Hand

Prices for higher voltage Bells on application

Designed for either Right or Left Hand Service. For all voltages up to 13,200 Volts.

Catalogue Numbers	Conductors	Voltage on Bell	Maximum Diameter Over Lead Sheath	Price
150	2	6,600	2 1/4"	\$20.00
151	3	6,600	2 1/2"	21.00
152	4	6,600	2 3/4"	22.00
153	2	13,200	2 1/4"	23.00
154	3	13,200	2 1/2"	24.00
155	3	13,200	2 3/4"	25.00

Shipping weight approximately 75 lbs. per bell.  
Always specify whether bell is for right or left hand service.

Write for Special Discounts.

**FOR MOUNTING ON WALL**



Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage

# Electrical Engineers Equipment Company

## Cable End Bells

Can be supplied with coupling nut for pipe, clamp nut for cable, nut for wiped joint or can be mounted directly on conduit up to 3½".



Type No. 24



Type No. 12

Prices for higher voltage Bells on application

Designed for mounting flat against a wall or other support, this Bell is called the "Smoking Pipe" from its form; it is built for voltages up to 13,200.

Catalogue No.	Conductors	Maximum Outside Diameter of Cable Sheath	Voltage on Bell	Approximate Shipping Weights, Lbs.	Price
122	2	1½"	6,600	50	\$18.00
123	3	1¾"	6,600	50	19.00
124	4	2"	6,600	50	20.00
125	2	1½"	13,200	50	20.50
126	3	1¾"	13,200	50	21.50
127	4	2"	13,200	50	22.50
242	2	2½"	6,600	75	\$20.00
243	3	2¾"	6,600	75	21.00
244	4	2¾"	6,600	75	22.00
245	3	2½"	13,200	75	23.00
246	2	2¾"	13,200	75	24.00
247	3	2½"	13,200	75	25.00

Write for Special Discounts.

Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage

# Electrical Engineers Equipment Company

## Angle Type Cable End Bells for Inside Service

Can be supplied with coupling nut for pipe, clamp nut for cable, nut for wiped joint or can be mounted directly on conduit up to 3½".



Type No. 19 Low Voltage



Type No. 19 High Voltage

Prices for higher voltage Bells on application

These Bells fill in narrow places and can also be mounted on a vertical wall or support. For voltages up to 13,200.

Cat- alogue No.	Con- duc- tors	Maximum Outside Diam. Over Lead Sheath	Voltage on Bell	Price	Cat- alogue No.	Con- duc- tors	Maximum Outside Diam. Over Lead Sheath	Voltage on Bell	Price
1901	2	1½"	6,600	\$18.00	1912	2	2"	6,600	\$20.00
1902	3	1¾"	6,600	19.00	1913	3	2¼"	6,600	21.00
1903	4	2"	6,600	20.00	1914	4	2½"	6,600	22.00
1904	2	1½"	13,200	20.50	1915	2	2¼"	13,200	23.00
1905	3	1¾"	13,200	21.50	1916	3	2½"	13,200	24.00
1906	4	2"	13,200	22.50	1917	3	2¾"	13,200	25.00

Approximate shipping weight 75 lbs.

Approximate shipping weight 75 lbs.

### FOR MOUNTING ON FLOOR

Write for Special Discounts.

Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage



# Electrical Engineers Equipment Company

## Bracket Type Cable End Bells For Inside Service

Filling compound furnished and included in prices of all bells—a reduction if omitted.

This Type of Bell was designed for service between Oil Switches and is arranged for mounting on pipe framework and owing to its shape very little space is necessary for the installation.



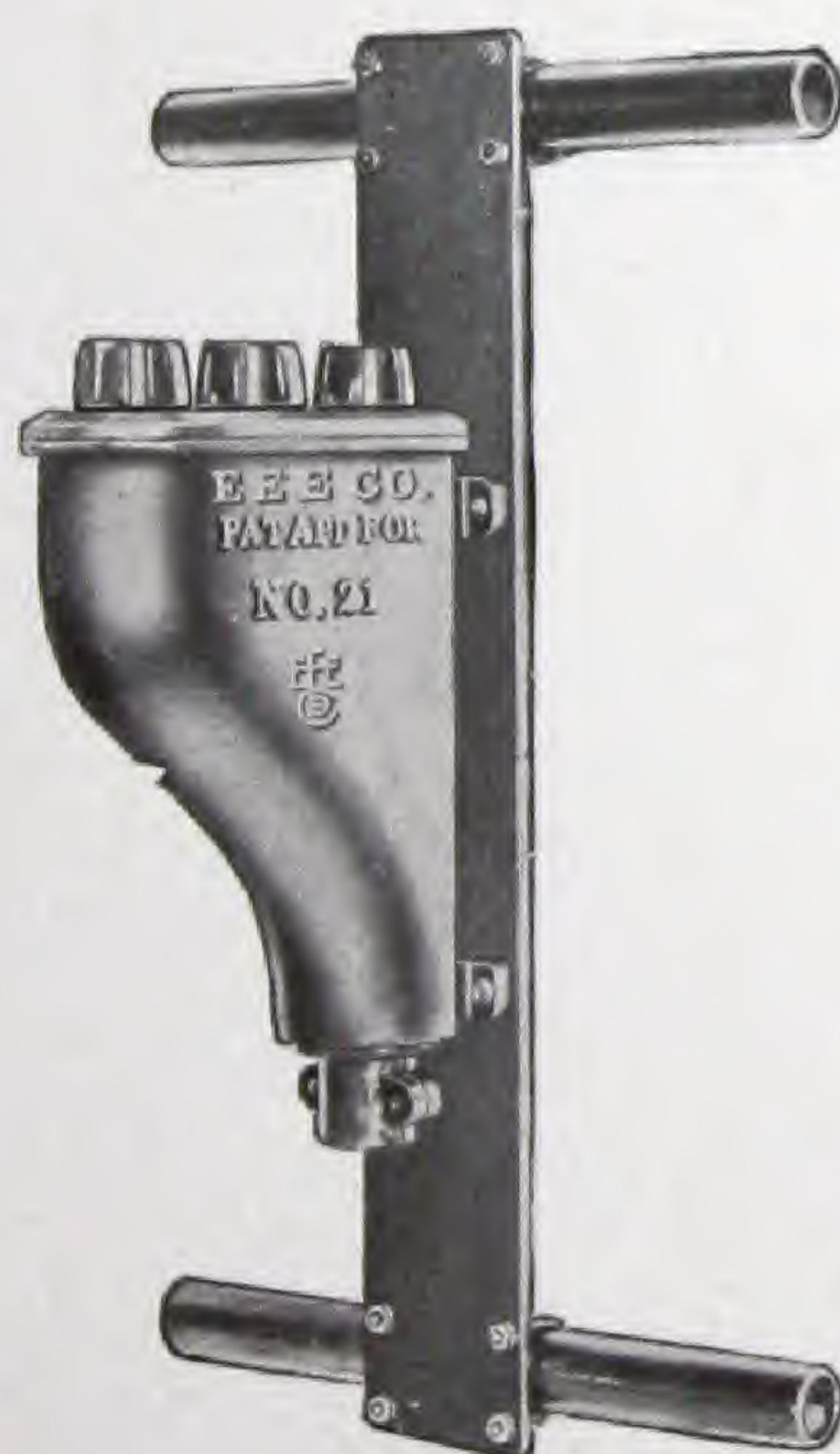
Type No. 22

Catalogue No.	Conductors	Maximum Outside Diameter Over Sheath	Voltage on Bell	Approx. Shipping Weight Lbs.	Price
222	2	2 1/4"	6,600	65	\$22.00
223	3	2 1/2"	6,600	65	23.00
224	2	2 1/4"	13,200	65	24.00
225	3	2 1/2"	13,200	65	25.00

We furnish the 4" Back Plate and 4-U Bolts. In ordering please give pipe size and centers between horizontal pipe supports.

If Back Plate is omitted take off \$2.00 list.

Prices for higher voltage Bells on application.



Type No. 21

In addition to clamping directly on lead covered cable, bells can be furnished to wipe on lead sheath or mount on conduit up to 3 1/2 inches.

Catalogue No.	Conductors	Maximum Outside Diameter Over Sheath	Voltage on Bell	Approx. Shipping Weight in pounds	Price
212	2	1 1/2"	6,600	65	\$18.00
213	3	1 3/4"	6,600	65	19.00
214	4	2"	6,600	65	20.00

We furnish the 4" Back Plate and 4-U Bolts. In ordering please give pipe size and centers between horizontal pipe supports.

If Back Plate is omitted take off \$2.00 list.

Bells can also be furnished with long lugs, where no back plate is required, making it possible to mount them directly on vertical wall.

**Write for Special Discounts.**

Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage

# Electrical Engineers Equipment Company

## Instructions for Installing Cable Bells

Cable bells are necessary for the successful operation of lead covered, heavy steel wire or band steel armored cables, not only that the end of the cable be kept dry but for the more necessary dissipation of static, the accumulation of which dissipates itself at the extreme end of the lead, wire or steel armor. Our patent ground clamp was designed to discharge this static and protect the insulation of the cable from puncture due to static discharge. Even on low voltages this static discharge will "sponge" the insulation by constant static streams, and eventually break down the cable at this point.

Experience has proven that nearly ninety per cent of cable troubles is due to the end of the cable being improperly protected, the majority of cable users believing that all that is necessary is to keep the end of the cable dry. This idea is erroneous, proven by us in many installations where our cable bells, have entirely eliminated break downs of this character. The operation of installing the bells is very simple, as shown by the six cuts.

Figure 1. An iron coupling is screwed on the iron pipe, which acts as a conduit for the lead cable. After the cable is pulled into the iron pipe or conduit, the iron coupling is screwed on the pipe.

Figure 2. The inside clamping device or ring is shown here screwed into the inside of the iron coupling. This ring should be screwed down as far as the threads will allow it to go.

Figure 3. The cable sheath is here shown purposely pulled above the iron ring to show how the lead sheath looks when it is belled out.

Figure 4. The lead cable sheath is here shown in place and with one-half of the clamping device attached. This clamping device is split and detachable, so that the cable can be belled out around same.

Figure 5. This cut shows the completed operation of belling out the lead sheath. The detachable half of the clamp device is shown screwed against its mate. After this mate has been screwed into place, the entire clamp ring should be unscrewed so it will form a tight contact against the belled out layer of the lead sheath. The screws in the clamp device should now be taken up tightly, so as to ground the body of the lead also against the clamp device. The cable is now ready for the bell casing, which should be screwed on over the iron nut.

This will leave the operation looking like Figure No. 6.

The leads should now be arranged and separated so as to come out of the proper bushings. The casing should now be filled with the compound, which is furnished with the cable bell. After the compound has been poured in the bell clear to the top it should be allowed to cool. After the compound has cooled and contracted, the bell should be again filled. In case you are filling an inside cable bell, you should not only fill the casing full but also the bushings around the leads clear to the top of the bushing. The compound will then prevent moisture, dirt, dust, etc., getting in around the leads in the bushings.

In case you are filling an outside cable bell, this bell also



Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage

# Electrical Engineers Equipment Company

## Instructions for Installing Cable Bells

(Concluded)

should be filled up to the top of the cover. A little oakum should be packed in around the leads so the compound will not run out of the bushings.

The compound will not run out of the bottom of the cable bell, as the clamp ring device makes it tight at the bottom. The outside bells are provided with ears for mounting them on poles, or other vertical surfaces. The bells will stand alone if mounted on an iron pipe.

Figure No. 6 shows an inside bell without mounting ears, but they can be provided for any bell we manufacture without extra cost.

Our cable bells can be furnished galvanized or sherardized if so required.

All high tension outside cable bells not screwed onto iron pipe should be grounded, and all inside cable bells carrying over 11,000 volts, not screwed on iron pipe, should also be grounded.

A quick method for melting the filler compound, which has a flow point exceeding 200 deg. F., is to break the compound up into lumps, place same into a tea-kettle and heat over a plumber's gasoline torch. The tea-kettle snout will prove very handy for filling the bells.

All bells are equipped with metal covers which are screwed to the bell casing thus making it possible to mount bells in any position.

Covers are provided with pipe plugs so that bells may be filled with compound without removing them.



### All Bells Fully Guaranteed

Please note that our special high grade filling compound is furnished and included in prices of all Bells. Di-electric test 68,000 volts on a 2/10" needle gap.

A reduction is made if compound is omitted.

Always Specify Outside Diameter Over Lead of Cable, Size of Conduit and Operating Voltage

# Electrical Engineers Equipment Company

## Instructions For Installing Cable Bells

### SHOWING THE INSIDE CLAMPING DEVICE

For grounding the end of the lead sheath,  
which eliminates puncture of the  
cable from static discharge.



Fig. No. 1



Fig. No. 2



Fig. No. 3



Sectional View Showing Assembly  
of Conduit, Coupling Nut and  
Brass Grounding Clamp.



Fig. No. 6  
"Inside" Bell

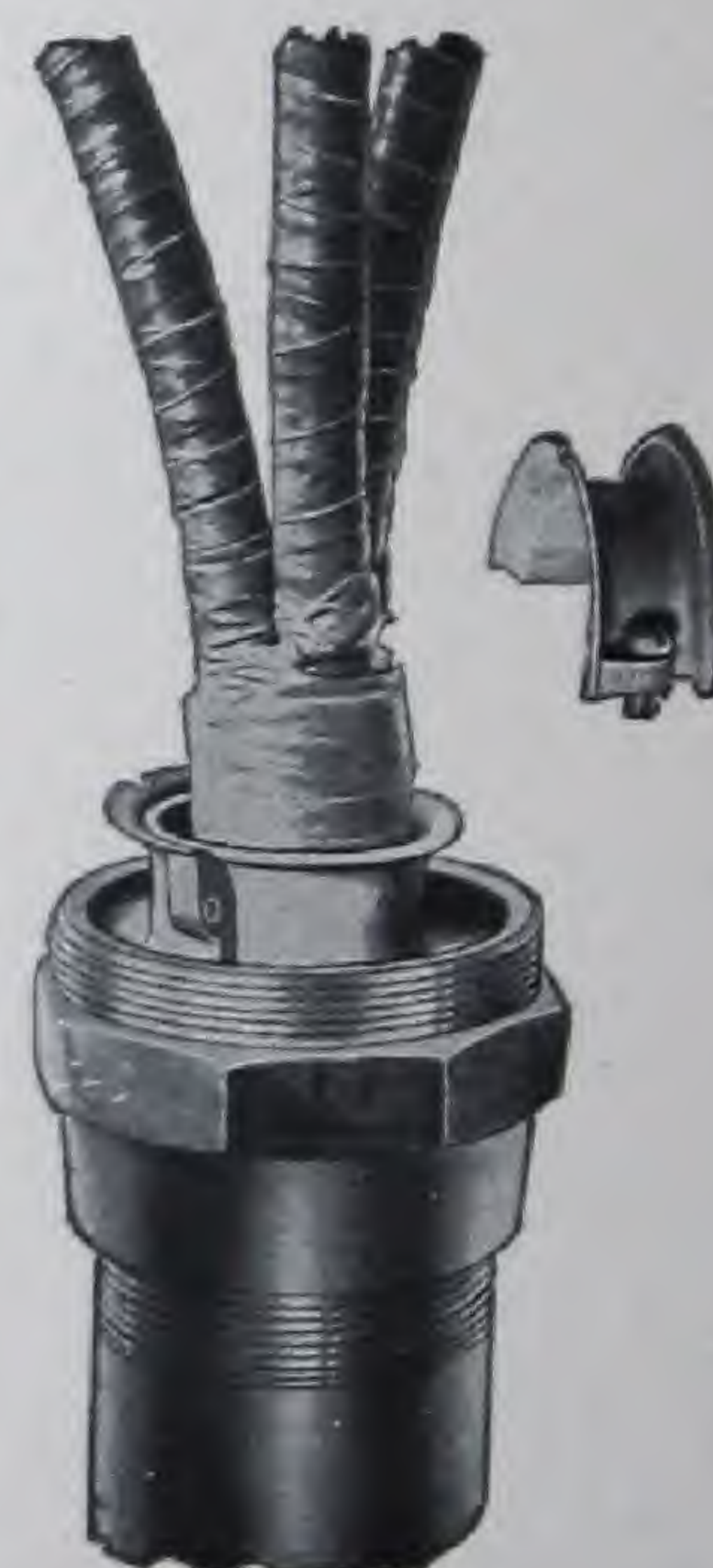


Fig. No. 4



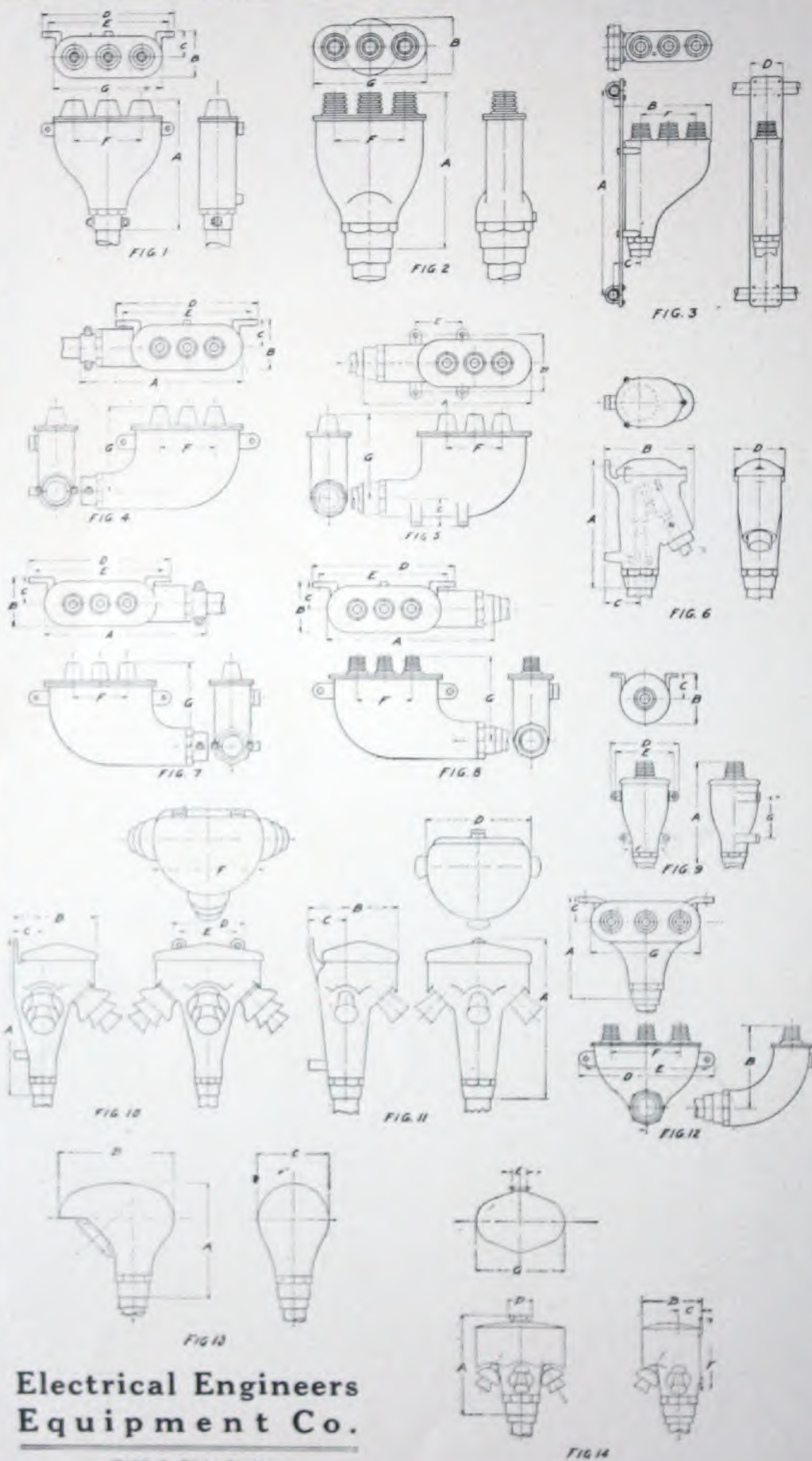
Fig. No. 5

# Electrical Engineers Equipment Company

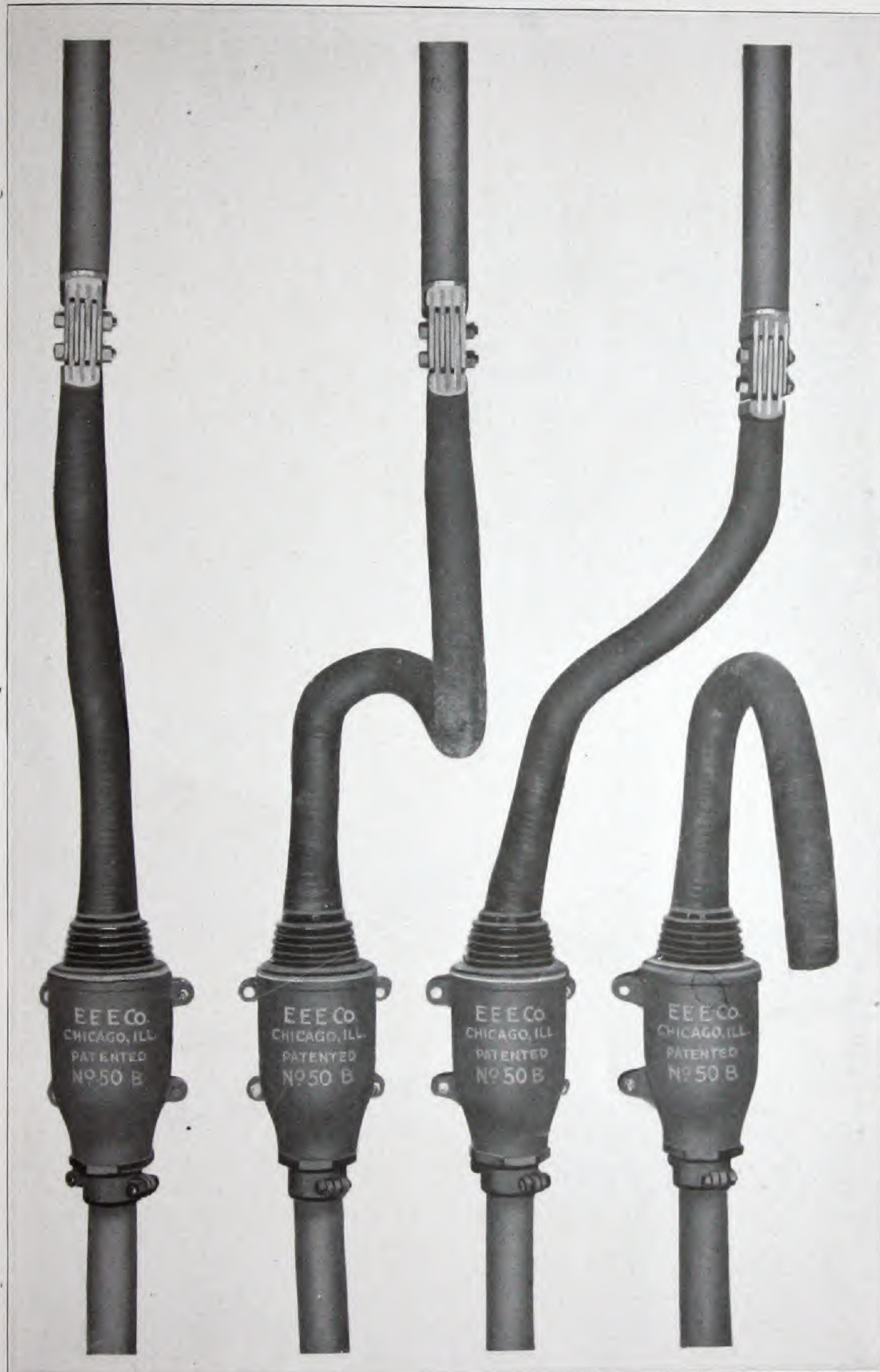
## Dimension Sheet Cable End Bells

Cat. No.	Fig.	A	B	C	D	E	F	G	Cat. No.	Fig.	A	B	C	D	E	F	G
101	1	15 $\frac{3}{8}$ "	4 $\frac{3}{4}$ "	2 $\frac{7}{8}$ "	13"	11 $\frac{3}{4}$ "	4 $\frac{7}{8}$ "	11"	420	14	14"	11 $\frac{3}{4}$ "	3 $\frac{3}{4}$ "	7 $\frac{1}{4}$ "	6"	10 $\frac{1}{4}$ "	14 $\frac{1}{2}$ "
102	1	"	"	"	"	"	6 $\frac{1}{8}$ "	"	421	14	"	"	"	"	"	"	"
103	1	"	"	"	"	"	7 $\frac{3}{8}$ "	"	423	14	"	"	"	"	"	"	"
104	1	16 $\frac{3}{8}$ "	"	"	"	"	4 $\frac{7}{8}$ "	"	424	14	"	"	"	"	"	"	"
105	1	"	"	"	"	"	6 $\frac{7}{8}$ "	"	425	14	"	"	"	"	"	"	"
106	1	"	"	"	"	"	7 $\frac{3}{8}$ "	"	500	9	7 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	4 $\frac{1}{4}$ "	3 $\frac{1}{4}$ "	"	"
107	1	8 $\frac{1}{2}$ "	3 $\frac{3}{8}$ "	1 $\frac{3}{4}$ "	7 $\frac{7}{8}$ "	7"	2 $\frac{1}{2}$ "	6"	501	9	"	"	"	"	"	"	"
108	1	"	"	"	"	"	"	"	502	9	"	"	"	"	"	"	"
109	1	"	"	"	"	"	"	"	503	9	14"	5 $\frac{1}{4}$ "	2 $\frac{3}{4}$ "	7 $\frac{1}{2}$ "	6 $\frac{1}{4}$ "	5 $\frac{1}{4}$ "	4 $\frac{1}{2}$ "
110	4	16 $\frac{3}{4}$ "	4 $\frac{3}{4}$ "	2 $\frac{7}{8}$ "	13 $\frac{5}{8}$ "	12 $\frac{1}{2}$ "	4 $\frac{7}{8}$ "	8 $\frac{3}{8}$ "	504	9	"	"	"	"	"	"	"
111	4	"	"	"	"	"	6 $\frac{1}{8}$ "	"	505	9	"	"	"	"	"	"	"
112	4	"	"	"	"	"	7 $\frac{3}{8}$ "	"	506	9	"	"	"	"	"	"	"
113	4	"	"	"	"	"	4 $\frac{1}{8}$ "	9 $\frac{3}{8}$ "	507	9	"	"	"	"	"	"	"
114	4	"	"	"	"	"	6 $\frac{7}{8}$ "	"	508	9	"	"	"	"	"	"	"
115	4	"	"	"	"	"	7 $\frac{3}{8}$ "	"	509	9	"	"	"	"	"	"	"
122	12	11"	8 $\frac{1}{2}$ "	3"	13 $\frac{1}{2}$ "	12"	4 $\frac{7}{8}$ "	11"	50A	9	"	"	"	"	"	"	"
123	12	"	"	"	"	"	6 $\frac{1}{8}$ "	"	50B	9	15 $\frac{1}{4}$ "	6 $\frac{1}{4}$ "	3 $\frac{1}{4}$ "	9"	7 $\frac{1}{4}$ "	7"	5 $\frac{1}{4}$ "
124	12	"	"	"	"	"	7 $\frac{3}{8}$ "	"	50C	9	"	"	"	"	"	"	"
125	12	"	"	"	"	"	4 $\frac{7}{8}$ "	"	50D	9	"	"	"	"	"	"	"
126	12	"	"	"	"	"	6 $\frac{1}{8}$ "	"	50E	9	"	"	"	"	"	"	"
127	12	"	"	"	"	"	7 $\frac{3}{8}$ "	"	50F	9	"	"	"	"	"	"	"
141	1	18 $\frac{1}{4}$ "	6"	3 $\frac{1}{2}$ "	18 $\frac{1}{4}$ "	16 $\frac{1}{2}$ "	8 $\frac{1}{4}$ "	14 $\frac{1}{4}$ "	50G	9	"	"	"	"	"	"	"
142	1	"	"	"	"	"	"	"	50H	9	"	"	"	"	"	"	"
143	1	"	"	"	"	"	"	"	50J	9	"	"	"	"	"	"	"
150	8	21"	6 $\frac{1}{8}$ "	3 $\frac{1}{4}$ "	18 $\frac{1}{2}$ "	16 $\frac{1}{4}$ "	5"	9 $\frac{3}{8}$ "	50K	9	"	"	"	"	"	"	"
151	8	"	"	"	"	"	8 $\frac{1}{4}$ "	"	510	6	12 $\frac{1}{4}$ "	9"	2 $\frac{1}{4}$ "	4 $\frac{1}{4}$ "	"	"	"
152	8	"	"	"	"	"	9 $\frac{1}{4}$ "	"	511	6	"	"	"	"	"	"	"
153	8	"	"	"	"	"	5"	10 $\frac{3}{8}$ "	512	6	"	"	"	"	"	"	"
154	8	"	"	"	"	"	8 $\frac{3}{4}$ "	"	513	6	"	"	"	"	"	"	"
155	8	"	"	"	"	"	"	"	514	6	"	"	"	"	"	"	"
212	3	26"	12 $\frac{3}{8}$ "	3 $\frac{1}{2}$ "	4"	"	4 $\frac{7}{8}$ "	"	515	6	"	"	"	"	"	"	"
213	3	"	"	"	"	"	6 $\frac{1}{8}$ "	"	516	6	"	"	"	"	"	"	"
214	3	"	"	"	"	"	7 $\frac{3}{8}$ "	"	517	6	"	"	"	"	"	"	"
222	3	"	"	"	"	"	4 $\frac{1}{8}$ "	"	750	13	11 $\frac{1}{4}$ "	12"	9"	"	"	"	"
223	3	"	"	"	"	"	6 $\frac{1}{8}$ "	"	811	2	14 $\frac{1}{4}$ "	5 $\frac{1}{4}$ "	"	"	"	4 $\frac{1}{4}$ "	11"
224	3	"	"	"	"	"	4 $\frac{7}{8}$ "	"	812	2	14 $\frac{1}{4}$ "	5 $\frac{1}{4}$ "	"	"	"	6 $\frac{1}{4}$ "	11"
225	3	"	"	"	"	"	6 $\frac{7}{8}$ "	"	813	2	"	"	"	"	"	4 $\frac{1}{4}$ "	"
242	12	14 $\frac{1}{4}$ "	11 $\frac{3}{4}$ "	3 $\frac{1}{2}$ "	17 $\frac{1}{4}$ "	15 $\frac{3}{8}$ "	5"	14 $\frac{3}{4}$ "	814	2	"	"	"	"	"	6 $\frac{1}{4}$ "	"
243	12	"	"	"	"	"	8 $\frac{3}{4}$ "	"	815	2	13 $\frac{1}{4}$ "	"	"	"	"	4 $\frac{1}{4}$ "	"
244	12	"	"	"	"	"	9 $\frac{1}{4}$ "	13 $\frac{3}{4}$ "	816	2	"	"	"	"	"	6 $\frac{1}{4}$ "	"
245	12	"	"	"	"	"	8 $\frac{3}{4}$ "	14 $\frac{3}{4}$ "	817	2	"	"	"	"	"	7 $\frac{1}{4}$ "	"
246	12	"	"	"	"	"	5"	"	818	2	"	"	"	"	"	4 $\frac{1}{4}$ "	"
247	12	"	"	"	"	"	8 $\frac{3}{4}$ "	"	819	2	"	"	"	"	"	6 $\frac{1}{4}$ "	"
301	11	15 $\frac{1}{2}$ "	11 $\frac{3}{8}$ "	5"	14"	"	"	"	820	2	14 $\frac{1}{4}$ "	4 $\frac{1}{4}$ "	"	"	"	4 $\frac{1}{4}$ "	"
302	11	"	"	"	"	"	"	"	821	2	"	"	"	"	"	6 $\frac{1}{4}$ "	"
303	11	"	"	"	"	"	"	"	822	2	13 $\frac{1}{4}$ "	"	"	"	"	4 $\frac{1}{4}$ "	"
304	11	"	"	"	"	"	"	"	823	2	"	"	"	"	"	6 $\frac{1}{4}$ "	"
310	11	"	"	"	"	"	"	"	824	2	"	"	"	"	"	7 $\frac{1}{4}$ "	"
311	11	"	"	"	"	"	"	"	1901	5	16 $\frac{1}{4}$ "	5 $\frac{1}{4}$ "	3 $\frac{1}{4}$ "	"	6"	4 $\frac{1}{4}$ "	8 $\frac{1}{4}$ "
312	11	"	"	"	"	"	"	"	1902	5	"	"	"	"	"	6 $\frac{1}{4}$ "	"
313	11	"	"	"	"	"	"	"	1903	5	"	"	"	"	"	7 $\frac{1}{4}$ "	"
361	10	26 $\frac{1}{2}$ "	15 $\frac{1}{2}$ "	6"	11 $\frac{1}{4}$ "	9"	19 $\frac{1}{2}$ "	"	1904	5	"	"	"	"	"	4 $\frac{1}{4}$ "	"
362	10	"	"	"	"	"	"	"	1905	5	"	"	"	"	"	6 $\frac{1}{4}$ "	"
363	10	"	"	"	"	"	"	"	1906	5	"	"	"	"	"	7 $\frac{1}{4}$ "	"
371	11	11 $\frac{3}{4}$ "	8 $\frac{3}{4}$ "	3 $\frac{1}{4}$ "	11"	"	"	"	1912	5	21"	6 $\frac{1}{4}$ "	3 $\frac{1}{4}$ "	"	7 $\frac{1}{4}$ "	5"	9 $\frac{1}{4}$ "
372	11	"	"	"	"	"	"	"	1913	5	"	"	"	"	"	8 $\frac{1}{4}$ "	"
381	11	"	"	"	"	"	"	"	1914	5	"	"	"	"	"	5"	10 $\frac{1}{4}$ "
382	11	"	"	"	"	"	"	"	1915	5	"	"	"	"	"	8 $\frac{1}{4}$ "	"
391	11	"	"	"	"	"	"	"	1916	5	"	"	"	"	"	8 $\frac{1}{4}$ "	"
392	11	"	"	"	"	"	"	"	1917	5	"	"	"	"	"	8 $\frac{1}{4}$ "	"

# Electrical Engineers Equipment Company



===== Electrical Engineers Equipment Company =====



Copper  
Tubing

Laminated  
Connector

Cambric  
Cable

Brass Bell

Lead Covered  
Cable

Single Conductor Bells installed in  
Southern California Edison Co.'s Plant

# Electrical Engineers Equipment Company

## DATA ON SOLID COPPER WIRE—ROUND

Size B.&S. Gauge	Dia. Mills	Circ. Mills	Square Inch	Pounds per M Ft	Pounds per Mile	Breaking Strain Hard Drawn	Breaking Strain Soft Drawn	Ohms per Mile Soft Drawn 60° F
0000	460	211600	.166190	640	3376	8370	5650	259
000	410	168100	.131793	508	2677	6580	4480	.326
00	365	133225	.104520	402	2123	5226	3553	.412
0	325	105625	.082932	319	1684	4558	2818	.519
1	289	83521	.065733	353	1059	3743	2234	.656
2	258	66564	.052130	201	839	3127	1772	.824
3	229	52441	.041338	159	666	2480	1405	1.04
4	204	41616	.032784	126	528	1967	1114	1.312
5	182	33124	.025998	100	419	1559	883	1.656
6	162	26244	.020617	79	332	1237	700	2.09
7	144	20736	.016349	63	263	980	555	2.62
8	128	16384	.012966	50	209	778	400	3.35
9	114	12996	.010284	40	166	617	349	4.23
10	102	10404	.008153	31.3	137	489	277	5.27
11	91	8281	.006467	24.9	104	388	219	6.63
12	81	6561	.005128	19.7	82.6	307	174	8.37
13	72	5184	.004067	15.7	65.6	244	138	10.6
14	64	4096	.003225	12.4	51.9	193	109	13.4
15	57	3249	.002557	9.84	41.2	153	87	16.9
16	51	2601	.002028	7.81	32.7	133	69	21.1
17	45	2025	.001608	6.19	25.9	97	55	27.0
18	40	1600	.001275	4.91	20.5	77	43	34.2
19	36	1296	.001011	3.88	16.3	61	34	42.4
20	32	1024	.000802	3.09	12.9	48	27	53.7

## DATA ON COPPER CABLE

Size B.&S. Gauge	No. of Wires in Strand	Dia. of Wires in In	Dia. of Bare Cable in In	Nearest In	Millimeter	Lbs. per 1000 Ft	Lbs. per Mile
14 B.&S.	7	.0243	.0729	$\frac{5}{64}$ "	1.9843	13	68
12 B.&S.	7	.0306	.0918	$\frac{3}{32}$ "	2.3812	20	105
10 B.&S.	7	.0386	.1158	$\frac{1}{8}$ "	3.1749	32	168
8 B.&S.	7	.0485	.1455	$\frac{3}{16}$ "	3.5718	51	269
6 B.&S.	7	.0613	.1839	$\frac{3}{8}$ "	4.7624	81	427
5 B.&S.	7	.0688	.2064	$\frac{1}{4}$ "	5.1592	103	544
4 B.&S.	7	.0773	.2319	$\frac{15}{64}$ "	5.9530	129	682
3 B.&S.	7	.0868	.2604	$\frac{17}{64}$ "	6.7467	164	867
2 B.&S.	7	.0974	.2922	$\frac{19}{64}$ "	7.5404	206	1089
1 B.&S.	19	.0664	.3320	$\frac{21}{64}$ "	8.3342	259	1368
0 B.&S.	19	.0746	.3750	$\frac{3}{8}$ "	9.5248	328	1733
00 B.&S.	19	.0838	.4190	$\frac{27}{64}$ "	10.715	414	2192
000 B.&S.	19	.094	.4700	$\frac{15}{32}$ "	11.906	520	2745
0000 B.&S.	19	.1056	.5280	$\frac{17}{32}$ "	13.493	658	3484
250,000 C.M.	37	.0823	.5754	$\frac{37}{64}$ "	14.684	775	4080
300,000 C.M.	37	.0906	.6342	$\frac{41}{64}$ "	16.272	943	4984
350,000 C.M.	37	.0974	.6818	$\frac{11}{16}$ "	17.462	1087	5476
400,000 C.M.	37	.104	.7280	$\frac{47}{64}$ "	18.653	1242	6566
450,000 C.M.	37	.111	.7770	$\frac{49}{64}$ "	19.843	1415	7480
500,000 C.M.	61	.0906	.8154	$\frac{13}{16}$ "	20.637	1554	8222
550,000 C.M.	61	.095	.8550	$\frac{55}{64}$ "	21.828	1709	9032
600,000 C.M.	61	.0992	.8928	$\frac{57}{64}$ "	22.621	1864	9852
650,000 C.M.	61	.1033	.9297	$\frac{59}{64}$ "	23.415	2020	10688
700,000 C.M.	61	.1072	.9648	$\frac{31}{32}$ "	24.606	2177	11506
750,000 C.M.	61	.111	.9990	1	25.3995	2333	12304
800,000 C.M.	61	.1146	1.0314	$1\frac{3}{64}$ "	26.590	2487	13136
900,000 C.M.	61	.1216	1.0944	$1\frac{3}{32}$ "	27.781	2813	14864
1000,000 C.M.	61	.1281	1.1529	$1\frac{5}{32}$ "	29.368	3110	16498
1250,000 C.M.	91	.1173	1.2903	$1\frac{19}{64}$ "	32.940	3888	20534
1500,000 C.M.	91	.1284	1.4124	$1\frac{27}{64}$ "	36.115	4660	24610
1750,000 C.M.	127	.1173	1.5262	$1\frac{11}{32}$ "	38.893	5435	28700
2000,000 C.M.	127	.1255	1.6315	$1\frac{41}{64}$ "	41.671	6212	32800



# Electrical Engineers Equipment Company



**"THREE E" SLOGAN**  
Economy, Efficiency, Endurance



AKRON, O.	323 Ohio Building
BIRMINGHAM, ALA.	1921 Powell Ave.
BOSTON, MASS.	84 State St.
CINCINNATI, O.	Union Trust Bldg.
CLEVELAND, O.	1202 Illuminating Bldg.
DENVER, COLO.	Gas and Electric Bldg.
DETROIT, MICH.	617 Ford Bldg.
HOUSTON, TEXAS.	1013 Rush Ave.
KANSAS CITY, MO.	312 Elmhurst Bldg.
LOS ANGELES, CAL.	San Fernando Bldg.
MILWAUKEE, WIS.	Mack Bldg.
MINNEAPOLIS, MINN.	716-718 McKnight Bldg.
NEW ORLEANS, LA.	821 Union St.
NEW YORK, N. Y.	21 Park Row
PITTSBURGH, PA.	First National Bank Bldg.
RICHMOND, VA.	301 American National Bank Bldg.
SALT LAKE CITY, UTAH.	218 Judge Bldg.
SAN FRANCISCO, CAL.	Rialto Bldg.
ST. LOUIS, MO.	La Salle Bldg.
SEATTLE, WASH.	2005 L. C. Smith Bldg.
CANADIAN DISTRIBUTORS	Northern Electric Co., Ltd.
HAVANA	14 Teniente Rey
SIDNEY, AUSTRALIA	426 Kent St.
SOUTHEASTERN REPS	Mill Power Supply Co., Charlotte, N. C.



[BLANK PAGE]



CCA